

**Virginia City Hybrid Energy Center**  
**Response to Data Request**  
**Hullihen Moore, Virginia Air Pollution Control Board**

**Question (E-Mail):**

Data from Cogentrix on down show Mercury content in lb/ton rather than ppm. Please obtain or convert so we have ppm for all units.

HCl is stated differently also. I would think it best to have one way and use for all plants. Please see if this can be done.

**Response:**

The mercury data for non-Dominion facilities has been converted to ppm and added in the attached table. As stated in the table footnote, the Hg data is back-calculated into an **emission factor** based on the Hg emissions reported by these companies to DEQ. The data reported for Dominion facilities (and probably Cogentrix-Portsmouth) is coal mercury content. Data reported for these other facilities is based on a mercury emission factor. As a result, it would not be appropriate to compare the mercury data from the non-Dominion facilities to the Dominion facilities because one is coal mercury content and the other is an emission factor (after any mercury control). The coal mercury content is not available to us for non-Dominion facilities.

The HCl data has been converted to ppm as well and added in the table. However, as is the case for mercury, most facilities either have HCl emissions data or they assume an EPA emission factor for their HCl emissions and they do not have specific coal chlorine content data.

2005													
Facility	Boiler	Tons Coal Burned	%A avg.	%A range	HCl content (avg.)	Mercury content (avg.)	Origin of Mercury Content Value	%S avg.	%S range	As. Content (avg.)	Lead content (avg.)	Cadmium Content (avg.)	HF content (avg.)
Dominion - Altavista	U1	88,858	11.06	9.05-15.11	1570 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.9	0.78-1.01				
	U2	90,154	11.06	9.05-15.11	1570 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.9	0.78-1.01				
Dominion - Bremo	U3	192,034	12.14	9.44-13.46	600 ppm	0.15 ppm	EPA 1999 ICR (EPRI)	0.89	0.69-1.58				
	U4	439,051	12.3	11.7-13.79	600 ppm	0.15 ppm	EPA 1999 ICR (EPRI)	0.85	0.69-1.3				
Dominion - Chesterfield	U3	255,354	10.11	9.55-10.5	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.11	0.97-1.26				
	U4	445,222	10.31	9.74-10.69	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.14	0.97-1.26				
	U5	775,418	10.32	9.86-10.77	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.15	1.01-1.25				
	U6	1,761,535	9.19	9.75-10.47	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.16	0.98-1.27				
Dominion - Chesapeake	U1	270,545	9.72	8.36-12.12	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.74	0.47-1.05				
	U2	280,639	10.61	8.4-12.18	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.75	0.46-1.05				
	U3	429,189	10.62	8.31-12.2	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.83	0.41-1.05				
	U4	150,197	10.74	8.98-12.39	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.84	0.5-1.05				
Dominion - Clover	U1	1,318,738	9.76	9.25-11.17	2.404E-4 lb/mmBtu	0.10 ppm	pm Hg in coal x tons coal x Hg stack test	0.96	0.93-1				
	U2	1,222,269	10.32	9.25-14.1	2.404E-4 lb/mmBtu	0.10 ppm	pm Hg in coal x tons coal x Hg stack test	0.98	0.93-1.13				
Dominion - Hopewell	U1	0	0	0	0	0.00 ppm				0	0		
	U2	0	0	0	0	0.00 ppm				0	0		
Dominion - Mecklenburg	U1	197,661	8.85	6.92-10.17	600 ppm	0.12 ppm	2000 Stack Test	1.24	1.04-1.26				
	U2	184,141	8.81	6.92-10.17	600 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	1.18	1.04-1.26				
Dominion - Southampton	U1	94,515	12.34	8.8-15.4	1400 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.82	0.8-1.2				
	U2	94,832	12.34	8.8-15.4	1400 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.82	0.8-1.2				
Dominion - Yorktown	U1	404,512	9.6	8.2-10.51	600 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	1.36	1.24-1.49				
	U2	432,660	9.58	8.05-10.44	600 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	1.36	1.21-1.47				
Cogentrix - Portsmouth	U1	62546.0	8.09	n/a	600 ppm	0.125 ppm	VA DEQ EIS Report	0.73	n/a				
	U2	66962.0	8.09	n/a	600 ppm	0.125 ppm	VA DEQ EIS Report	0.73	n/a				
	U3	64877.0	8.09	n/a	600 ppm	0.125 ppm	VA DEQ EIS Report	0.73	n/a				
	U4	67789.0	8.09	n/a	600 ppm	0.125 ppm	VA DEQ EIS Report	0.73	n/a				
	U5	66690.0	8.09	n/a	600 ppm	0.125 ppm	VA DEQ EIS Report	0.73	n/a				
	U6	66213.0	8.09	n/a	600 ppm	0.125 ppm	VA DEQ EIS Report	0.73	n/a				
Birchwood Power Partners, L.P.	U1	664060	10.4	n/a	5 ppm	0.003 ppm	VA DEQ EIS Report	0.74	n/a				
Spruance Genco, LLC	U1	212106.0	8.48	n/a	48 ppm	0.041 ppm	VA DEQ EIS Report	0.86	n/a				
	U2	212822.0	8.48	n/a	44 ppm	0.044 ppm	VA DEQ EIS Report	0.86	n/a				
	U3	226903.0	8.48	n/a	36 ppm	0.039 ppm	VA DEQ EIS Report	0.86	n/a				
	U4	219083.0	8.48	n/a	35 ppm	0.043 ppm	VA DEQ EIS Report	0.86	n/a				
James River Cogen	U1	203174.0	8.46	n/a	600 ppm	0.042 ppm	VA DEQ EIS Report	0.9	n/a				
	U2	203305.0	8.46	n/a	600 ppm	0.041 ppm	VA DEQ EIS Report	0.9	n/a				
AEP - Glen Lyn	U5	165956	10.8	n/a	615 ppm	0.040 ppm	VA DEQ EIS Report	0.89	n/a				
	U6	503511	10.4	n/a	612 ppm	0.040 ppm	VA DEQ EIS Report	0.9	n/a				
AEP - Clinch River	U1	558251.0	13,590	n/a	612 ppm	0.046 ppm	VA DEQ EIS Report	.870	n/a				
	U2	520872.0	13,620	n/a	611 ppm	0.046 ppm	VA DEQ EIS Report	.880	n/a				
	U3	513202.0	13,620	n/a	610 ppm	0.046 ppm	VA DEQ EIS Report	.860	n/a				
Potomac River Gen. Station	u1	141530.0	8.5	n/a	600 ppm	Not available		n/a	0.85	n/a			
	u2	107217.0	8.5	n/a	600 ppm	Not available		n/a	0.85	n/a			
	u3	117738.0	8.5	n/a	600 ppm	Not available		n/a	0.85	n/a			
	u4	108295.0	8.5	n/a	600 ppm	Not available		n/a	0.85	n/a			
	u5	117581.0	8.5	n/a	600 ppm	Not available		n/a	0.85	n/a			

Indicates a value that does not represent a coal parameter but represents an emission factor.

\* indicates AP-42 factor of 1.2 lb/ton is used for HCl emissions reporting calculations (no stack tests are available at this time)

\*\* %S, %A, tons of coal as reported to DEQ on Annual Emission Inventory Statements (EIS). HCl and Hg emissions calculated from emissions reported to DEQ for EIS.

Except as specifically noted below, all listed Title V permits require, at a maximum, fuel content records for coal sulfur, ash and heat value. Arsenic, Lead, Cadmium and Fluorides are not part of the usual coal analysis, as AP-42 or F-factors are used in compliance calculations. Exceptions include: Spruance Genco is required to have stack tests (not coal analysis) results for Be, sulfuric acid mist, mercury, and formaldehyde; Mirant is required to have stack tests (not coal analysis) for HCl and HF. Such stack tests for non-Dominion facilities are not available at this time.

2006													
Facility	Boiler	Tons Coal Burned	%A avg.	%A range	HCl content (avg.)	Mercury content (avg.)	Origin of Mercury Content Value	%S avg.	%S range	As. Content (avg.)	Lead content (avg.)	Cadmium Content (avg.)	HF content (avg.)
Dominion - Altavista	U1	82,238	10.12	8.65-11.79	1570 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.89	0.66-1.12				
	U2	78,915	10.12	8.65-11.79	1570 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.89	0.66-1.12				
Dominion - Bremo	U3	178,937	12.18	11.71-12.83	600 ppm	0.15 ppm	EPA 1999 ICR (EPRI)	0.95	0.76-1.06				
	U4	446,697	12.12	11.71-12.83	600 ppm	0.15 ppm	EPA 1999 ICR (EPRI)	0.97	0.76-1.06				
Dominion - Chesterfield	U3	178,763	10.03	9.22-11.32	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.15	1.01-1.27				
	U4	336,374	10.05	9.22-11.32	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.16	1.05-1.51				
	U5	804,490	10.06	9.22-11.32	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.16	1.05-1.27				
	U6	1,631,741	10.08	9.22-11.32	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.15	1.05-1.27				
Dominion - Chesapeake	U1	263,733	11.74	10.62-12.58	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.75	0.63-0.93				
	U2	270,475	11.74	10.53-12.55	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.76	0.63-0.94				
	U3	439,680	9.87	9.96-11.85	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.99	0.87-1.27				
	U4	534,635	8.99	9.93-11.72	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.98	0.86-1.3				
Dominion - Clover	U1	1,408,084	10.69	9.3-12.16	2.404E-4 lb/mmBtu	0.10 ppm	mm Hg in coal x tons coal x Hg stack test	1.02	0.93-1.13				
	U2	1,397,013	10.01	9.25-12.16	2.404E-4 lb/mmBtu	0.10 ppm	mm Hg in coal x tons coal x Hg stack test	0.99	0.93-1.13				
Dominion - Hopewell	U1	0	0	0	0	0	AP-42: Table 1.1-16, 5th Ed 9/98	0	0				
	U2	0	0	0	0	0	AP-42: Table 1.1-16, 5th Ed 9/98	0	0				
	U3	0	0	0	0	0	AP-42: Table 1.1-16, 5th Ed 9/98	0	0				
Dominion - Mecklenburg	U1	168,524	10	8.48-12.85	600 ppm	0.12 ppm	2000 Stack Test	1.11	0.85-1.2				
	U2	168,704	10	8.48-12.85	600 ppm	0.12 ppm	2000 Stack Test	1.1	0.85-1.2				
Dominion - Southampton	U1	81,105	11.29	9.9-13.9	1400 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.85	0.7-1.0				
	U2	80,623	11.29	9.9-13.9	1400 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.85	0.7-1.0				
Dominion - Yorktown	U1	389,560	8.55	7.55-9.96	600 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	1.39	1.17-1.46				
	U2	386,591	8.63	7.56-9.53	600 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	1.39	1.19-1.53				
Cogentrix - Portsmouth	U1	64962.0	8.390	n/a	600 ppm	n/a	n/a	.840	n/a				
	U2	62551.0	8.390	n/a	600 ppm	n/a	n/a	.840	n/a				
	U3	67714.0	8.390	n/a	600 ppm	n/a	n/a	.840	n/a				
	U4	65548.0	8.390	n/a	600 ppm	n/a	n/a	.840	n/a				
	U5	62623.0	8.390	n/a	600 ppm	n/a	n/a	.840	n/a				
	U6	65222.0	8.390	n/a	600 ppm	n/a	n/a	.840	n/a				
Birchwood Power Partners, L.P.	U1	503606	10.2	n/a	4 ppm	0.042 ppm	VA DEQ EIS Report	0.82	n/a				
Spruance Genco, LLC	U1	177183.0	8.8	n/a	56 ppm	0.049 ppm	VA DEQ EIS Report	0.83	n/a				
	U2	169827.0	8.8	n/a	55 ppm	0.055 ppm	VA DEQ EIS Report	0.83	n/a				
	U3	184525.0	8.8	n/a	46 ppm	0.048 ppm	VA DEQ EIS Report	0.83	n/a				
	U4	181437.0	8.8	n/a	48 ppm	0.051 ppm	VA DEQ EIS Report	0.83	n/a				
James River Cogen	U1	189335.0	8.46	n/a	600 ppm	0.045 ppm	VA DEQ EIS Report	.90	n/a				
	U2	192688.0	8.46	n/a	600 ppm	0.044 ppm	VA DEQ EIS Report	.90	n/a				
AEP - Glen Lyn	U5	177131.0	10.58	n/a	614 ppm	0.04 ppm	VA DEQ EIS Report	0.92	n/a				
	U6	524850.0	10.94	n/a	607 ppm	0.04 ppm	VA DEQ EIS Report	0.92	n/a				
AEP - Clinch River	U1	499109.0	13.580	n/a	612 ppm	n/a	n/a	.88	n/a				
	U2	551081.0	13.570	n/a	610 ppm	n/a	n/a	.88	n/a				
	U3	596407.0	13.570	n/a	613 ppm	n/a	n/a	.88	n/a				
Potomac River Gen. Station	u1	59821.0	8.5	n/a	18 ppm	0.141	VA DEQ EIS Report	0.85	n/a				
	u2	56981.0	8.5	n/a	16 ppm	0.101	VA DEQ EIS Report	0.85	n/a				
	u3	114939.0	8.5	n/a	15 ppm	0.0555	VA DEQ EIS Report	0.85	n/a				
	u4	144517.0	8.5	n/a	16 ppm	0.0407	VA DEQ EIS Report	0.85	n/a				
	u5	126987.0	8.5	n/a	16 ppm	0.052	VA DEQ EIS Report	0.85	n/a				

Indicates a value that does not represent a coal parameter but represents an emission factor.

\* Indicates AP-42 factor of 1.2 lb/ton is used for HCl emissions reporting calculations (no stack tests are available at this time)

\*\* %S, %A, tons of coal as reported to DEQ on Annual Emission Inventory Statements (EIS). HCl and Hg emissions calculated from emissions reported to DEQ for EIS.

Except as specifically noted below, all listed Title V permits require, at a maximum, fuel content records for coal sulfur, ash and heat value. Arsenic, Lead, Cadmium and Fluorides are not part of the usual coal analysis, as AP-42 or F-factors are used in compliance calculations. Exceptions include: Spruance Genco is required to have stack tests (not coal analysis) results for Be, sulfuric acid mist, mercury, and formaldehyde; Mirant is required to have stack tests (not coal analysis) for HCl and HF. Such stack tests for non-Dominion facilities are not available at this time.

2007													
Facility	Boiler	Tons Coal Burned	%A avg.	%A range	HCl content (avg.)	Mercury content (avg.)	Origin of Mercury Content Value	%S avg.	%S range	As. Content (avg.)	Lead content (avg.)	Cadmium Content (avg.)	HF content (avg.)
Dominion - Altavista	U1	77,657	10.24	7.62-12.03	1570 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.76	0.65-0.83				
	U2	75,007	10.24	7.62-12.03	1570 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.76	0.65-0.83				
Dominion - Bremo	U3	208,921	11.26	10.67-11.81	600 ppm	0.15 ppm	EPA 1999 ICR (EPRI)	0.88	0.81-1.0				
	U4	435,580	11.26	10.67-11.81	600 ppm	0.15 ppm	EPA 1999 ICR (EPRI)	0.85	0.81-1.0				
Dominion - Chesterfield	U3	228,378	9.45	8.68-10.66	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.15	1.12-1.2				
	U4	370,142	9.54	8.68-10.66	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.15	1.08-1.2				
Dominion - Chesapeake	U5	936,009	9.64	8.68-10.66	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.14	1.02-1.2				
	U6	1,707,143	9.55	8.68-10.66	600 ppm	0.11 ppm	EPA 1999 ICR (EPRI)	1.14	1.02-1.2				
Dominion - Chesapeake	U1	331,766	7.21	6.41-8.41	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.53	0.47-0.76				
	U2	333,342	7.23	6.41-8.42	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.53	0.47-0.76				
Dominion - Clover	U3	401,120	7.67	6.4-10.83	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.61	0.47-1.14				
	U4	616,732	7.62	6.4-10.83	600 ppm	0.09 ppm	EPA 1999 ICR (EPRI)	0.6	0.47-1.14				
Dominion - Hopewell	U1	1,339,763	10.41	9.28-11.22	2,404E-4 lb/mmBtu	0.10 ppm	pm Hg in coal x tons coal x Hg stack test	0.98	0.93-1.1				
	U2	1,331,824	9.94	9.25-11.22	2,404E-4 lb/mmBtu	0.10 ppm	pm Hg in coal x tons coal x Hg stack test	1.01	0.93-1.1				
Dominion - Mecklenburg	U1	173,354	9.02	9.1-10.78	600 ppm	0.12 ppm	2000 Stack Test	1	0.84-1.12				
	U2	170,702	8.98	9.1-10.78	600 ppm	0.12 ppm	2000 Stack Test	1.01	0.84-1.12				
Dominion - Southampton	U1	105,098	11.59	10.5-12.3	1400 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.86	0.8-0.9				
	U2	98,018	11.59	10.5-12.3	1400 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	0.86	0.8-0.9				
Dominion - Yorktown	U1	419,154	7.83	7.86-9.46	600 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	1.26	1.13-1.37				
	U2	383,515	7.79	7.99-10.15	600 ppm	0.12 ppm	EPA 1999 ICR (EPRI)	1.25	1.07-1.37				
Cogentrix - Portsmouth	U1	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U2	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U3	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U4	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U5	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U6	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Birchwood Power Partners, L.P.	U1	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Spruance Genco, LLC	U1	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U2	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U3	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U4	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
James River Cogen	U1	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U2	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AEP - Glen Lyn	U5	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U6	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
AEP - Clinch River	U1	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U2	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	U3	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potomac River Gen. Station	U1-U5	Not Available	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Indicates a value that does not represent a coal parameter but represents an emission factor.

Note: 2007 Annual Emissions data (throughputs and coal analysis) are not available from DEQ at this time.

\* indicates AP-42 factor of 1.2 lb/ton is used for HCl emissions reporting calculations (no stack tests are available at this time)

\*\* %S, %A, tons of coal as reported to DEQ on Annual Emission Inventory Statements (EIS). HCl and Hg emissions calculated from emissions reported to DEQ for EIS.

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Simple Average 2005-2007 (average of all EGUs for all three years)	% A Avg.	% S Avg.	HCl content (avg.)	Mercury content (avg.)
	9.47	0.89	747 ppm	0.11 ppm
Weighted Average 2005-2007 (average of each boiler, weighted by tons coal, for all EGUs for all three years)	% A Avg.	% S Avg.	HCl content (avg.)	Mercury content (avg.)
	10.41	1.01	647 ppm	0.11 ppm